Vol. 1, 1970

Ophthalmic Research

Journal for Research in Experimental and Clinical Ophthalmology

Managing Editors:
O. Hockwin, Bonn
G. Naumann, Hamburg
D. F. Cole, London
Editorial Board:
B. Becker, St. Louis, Mo.
E. R. Berman, Jerusalem
G. M. Bleeker, Amsterdam
E. Dodt, Bad Nauheim
J. Draeger, Bremen
S. M. Drance, Vancouver
P. Y. Evans, Washington, D.C.
J. François, Gand
J. Gloster, London
H. Hanson, Halle-Saale
S. Lerman, Montreal
E. Linnér, Umeå
A. Lobstein, Strasbourg
S. Mishima, Tokyo
P. Niesel, Bern
P. Oberhoff, McLean, Va.
J. A. Oosterhuis, Leiden
R. Praus, Prag
M. Reim, Marburg
W. Rohen, Marburg
J. Vanýsek, Brno
E. Weigelin, Bonn
R. Witmer, Zürich

S. Karger (Switzerland) · München · Paris · New York

S. Karger · Basel · München · Paris · New York
Arnold-Böcklin-Straße 25, CH-4000 Basel 11 (Switzerland)

All rights, including that of translation into other languages, reserved.
Photomechanic reproduction (photocopy, microcopy) of this volume or parts thereof without special permission of the publishers is prohibited.
© Copyright 1970 by S. Karger AG, Verlag für Medizin und Naturwissenschaften, Basel
Printed in Switzerland by Basler Druck- und Verlagsanstalt, Basel
Clichés: Steiner & Cie., AG, Basel

Index

Editorial 1
Introduction 3
Ah Ti Tan: vide Lerman, S.
Arvan, D.: vide Yanoff, M.
Babický, A.: vide Obenberger, J.
Bach, G. and Berman, E. R. (Jerusalem): Characterization of a Sialoglycan Isolated from Cattle retina 257
Bakker, R. B.: vide Oosterhuis, J. A.
Bechrakis, E. (Bonn): Statistical Investigations of Intraocular Pressure with Goldmann's Applanation Tonometer 211
Berge, van der, K. M. vide Oosterhuis, J. A.
Bergeder, H. D.: vide Hockwin, O.
Berman, E. R.: vide Bach, G.
Berman, E. R.: vide Saliternik-Givant, S.
Bill, A. (Uppsala): The Effect of Changes in Arterial Blood Pressure on the Rate of Aqueous Humour Formation in a Primate (Cercopithecus ethiops) . . 193
Bolková, A.: vide Čejková, J.
Brettschneider, I.: vide Čejková, J.
Brettschneider, I.: vide Obenberger, J.
Brettschneider, I. and Praus, R. (Prague): Changes of Glycosaminoglycan Sulphation in the Cornea of Lathyric Chick Embryos 31
Brettschneider, I. and Praus, R. (Prague): Effect of Lathyrogens on Glycosaminoglycans of Bovine Cornea in vitro 220
Buschmann, W.; Voss, M., and Kemmerling, S. (Berlin): Acoustic Properties of Normal Human Orbit Tissues 354
Čejková, J.: vide Obenberger, J.
Čejková, J. and Brettschneider, I. (Prague): Glutaraldehyde Fixation of Corneal Acid Mucopolysaccharides 149
Čejková, J. and Bolková, A. (Prague): Effect of Fixatives on Acid Mucopolysaccharides (AMPS) in the Experimentally Hydrated Rabbit Cornea . . . 273
Cole, D. F. (London): Considerations on the Use of SI Units 5
Cornesky, R. A.: vide Marak, G. E.
Culp, T. W.; Hall, F. F.; Jeter, J., and Ratliff, C. R. (Temple, Tex.): Lens Lipids: Biosynthesis and Histological Distribution in Rabbit Lens 313
Dardenne, M. U.; Poonawalla, N. H., and Hanrath, E. M. (Bonn): On Endocrine Orbitopathy 79
Dardenne, M. U.; Poonawalla, N. H.; Hanrath, P., and Nöcker, D. (Bonn): On Endocrine Orbitopathy. Influence of Various Hormones on Experimental Exophthalmos 344
Duffner, L. R.: vide Flynn, J. T.
Elewaut-Rysselaere, M.: vide François, J.
Farkas, T. G. and Mahajan, Y. L. (Chicago): In vitro Insulin Effect on Glucose Utilization of Isolated Rat Lenses 72

FINK, H.: vide HOCKWIN, O.
FINK, H.; HOCKWIN, O., and WEIGELIN, E. (Bonn): Growth Curve of the Eye Lens of Some Domestic and Test Animals 321
FLYNN, J.T. and DUFFNER, L.R. (Miami, Fla.). Dark Adaptation in Strabismic Amblyopia: The Use of Acuity Targets 365
FRANÇOIS, J. and ELEWAUT-RYSSELAERE, M. (Gand): Experimental Study of the Intraocular Inoculation of Histoplasma Duboisii 228
GALLIK, G.J.: vide MARAK, G.E.
GIERTHY, J.: vide WEINSIEDER, A.
GOLDSMITH, T.H. (New Haven, Conn.): The Retinaldehyde of Honeybees 292
HALL, F.F.: vide CULP, T.W.
HANRATH, E.M.: vide DARDENNE, M.U.
HANRATH, P.: vide DARDENNE, M.U.
HENKES, H.E.: vide VAN LITH, G.H.M.
HOCKWIN, O.: vide FINK, H.
HOCKWIN, O.: vide WU, CHIA-DER
HOCKWIN, O.; BERGEDER, H.D.; FINK, H., and WEIGELIN, E. (Bonn): Behaviour of Different Enzyme Activities in the Lenses of Chicken during the First Year of Life 302
HOLLANDER, M.: vide LERMAN, S.
HORSTEN, G.P.M.; KLIJN, J.A.J., and WINKELMAN, J.E. (Nijmegen/Amsterdam): The Influences of Electrical Stimulation of the Lateral Geniculate Body upon the Electrical Activity of the Cat's Retina 239
JETER, J.: vide CULP, T.W.
KEMMERLING, S.: vide BUSCHMANN, W.
KERN, R.; ZÁRUBA, K., and SCHEITLIN, W. (Zurich): Ocular Side-effects of Long-term Immuno-suppressive Therapy in Recipients of Cadaver Kidney Transplants 21
KLIJN, J.A.J.: vide HORSTEN, G.P.M.
KRAKAU, C.E.T. (Lund): A Vibration Tonometer 129
KRAKAU, C.E.T. (Lund): Short Communication – A Note on Measurements of the Pupillary Aqueous Flow 254
KUCK, J.F., jr. (Atlanta): Response of the Mouse Lens to High Concentrations of Glucose or Galactose 166
LANG, J. and WÜRTH, A. (Zürich): Photographic Representation of Anomalous Retinal Correspondence 88
LERMAN, S.: vide MEHTA, P.D.
LERMAN, S.; AH TI TAN; LOUIS, D., and HOLLANDER, M. (Montreal): Anomalous Absorptivity of Lens Proteins due to a Fluorogen 338
LITH, VAN, G.H.M. and HENKES, H.E. (Rotterdam): The Relationship Between ERG and VER 40
LOUIS, D.: vide LERMAN, S.
MAHAJAN, Y.L.: vide FARKAS, T.G.
MAISEL, H.: vide RANA, M.W.
MARAK, G.E.; GALLIK, G.J., and CORNESKY, R.A. (Washington/Pittsburgh): Light-Sensitive Pigments in Insect Heads 65
MCCONNELL, D.G.: vide SOLZE, D.A.

MEHTA, P.D. and LERMAN, S. (Montreal): Immunochemical Relationship between Soluble and Insoluble Lens Proteins 10
MÜLLER, H.K.: vide WU, CHIA-DER
NIX, R.: vide YANOFF, M.
NÖCKER, D.: vide DARDENNE, M.U.
NOLL, E.: vide WU, CHIA-DER
OBENBERGER, J. and BABICKÝ, A. (Prague): Experimental Corneal Calcification: A Study of ^{45}Ca into the Aqueous and Cornea 187
OBENBERGER, J.; ČEJKOVÁ, J., and BRETTSCHNEIDER, I. (Prague): Experimental Corneal Calcification: A Study of Acid Mucopolysaccharides 175
OOSTERHUIS, J.A.; BAKKER, R.B., and VAN DEN BERGE, K.M. (Amsterdam/Leyden): Binocular Fundus Reflectometry 108
POONAWALLA, N.H.: vide DARDENNE, M.U.
PRAUS, R.: vide BRETTSCHNEIDER, I.
RANA, M.W. and MAISEL, H. (Detroit): The Submit Structure of Chick Lens Beta-Crystallins 156
RATLIFF, C.R.: vide CULP, T.W.
REDDY, V.N. (Rochester, Mich.): Distribution of Free Amino Acids and Related Compounds in Rabbit Cornea 48
RILEY, M.V. and VOADEN, M.J. (London): The Metabolism of the Isolated Retina 52
ROTHSTEIN, H.: vide WEINSIEDER, A.
SALITERNIK-GIVANT, S. and BERMAN, E.R. (Jerusalem): Biochemical Heterogeneity of the Corneal Glycosaminoglycans 94
SAYEGH, F. (Bonn): Critical Comparison of Ophthalmodynamographic and Dynamometric Measurements 201
SCHEITLIN, W.: vide KERN, R.
SOLZE, D.A. and MCCONNELL, D.G. (Columbus): Ultrastructural Changes in the Rat Photoreceptor Inner Segment During Experimental Chloroquine Retinopathy 140
VOADEN, M.J.: vide RILEY, M.V.
VOSS, M.: vide BUSCHMANN, W.
WEIGELIN, E.: vide HOCKWIN, O.
WEIGELIN, E.: vide FINK, H.
WEINSIEDER, A.; ROTHSTEIN, H., and GIERTHY, J. (Burlington), Vt.): A Comparison of Wound Repair in Cultured Lenses with that Occurring in the Lenses of Living Animals 279
WINKELMAN, J.E.: vide HORSTEN, G.P.M.
WU, CHIA-DER; MÜLLER, H.K.; HOCKWIN, O., and NOLL, E. (Bonn): Determination of the Wet and Dry Weight of Iris, Ciliary Body and Choroid in Man and Different Animal Species 124
WÜRTH, A.: vide LANG, J.
YANOFF, M.; NIX, R., and ARVAN, D. (Philadelphia, Pa): Bilateral lacrimal Gland Enlargement associated with a diffuse Gamma globulin Elevation . . . 245
ZÁRUBA, K.: vide KERN, R.

Subject Index ad Vol. 1 378
Index ad Vol. 1 . . . . . after 376

Subject Index

Absorption spectra 338
Acid mucopolysaccharides 175, 273
ACTH 344
Acuity targets 365
Adaptometer 365
Adrenaline 344
Age 124, 156, 211, 302, 321
Alloxan 166
Amblyopia 88
Amino acids 48
Anomalous retinal correspondence 88
Anterior chamber, histoplasmosis 228
Apis 65
Aqueous humour 48, 187, 193, 254
Applanation 211
Area striata 40
α-, β-, γ-crystallin 10, 156, 338

Bilateral chronic dacryoadenitis 245
Biomathematical models 321
Biometrical methods 321
Biostatistical analysis 302, 321
Blood volume 109
Blood pressure 193
Bovine 10, 257, 94, 124, 220, 321
Buffers 58

Calcification 187, 175
Calcium 58, 187
Carnoy's fluid 273
Carotid cavernous fistula 109
Carotid occlusion 109
Cat 239
Cataract 21, 72, 166, 302
Centric stimulation 40
Ceramides 313
Cerebral circulation 201
Chemical units 5
Chick embryo corneas 31
Chicken 31, 156, 302, 321
Chloroquine 140
Cholesterol 313
Chondroitin sulphate 220
Choroid 109, 124
Chromatographic methods 94
Chromium 72
Ciliary Body 124
Circulation time 109
Complement fixation 10
Compound eye 65
Cone density 40
Cone projection 40
Cornea 31, 48, 94, 149, 175, 187, 220, 273
Cornea, Respiration 58
Corneal collagen 31, 220
Corneal edema 187
Corticosteroid therapy 21
Cortisol 344
Crystallin, α-, β-, γ- 10, 156, 338

Dark adaptation 239, 365
Diabetes 72, 166
Diagnostic ultrasonography 354
Dihydrotachysterol 175, 187
Documentation 88
Dogfish 10, 338

Eccentric fixation 88
Eccentric stimulation 40
Effect of fixatives 273
Efferent optic nerve fibres 239
Electron microscopy 140
Electroretinogram 40, 239
Endocrine orbitopathy 79, 344
Enzyme activities 302
Enzyme-inhibitor 58
Epithelium of cornea 48
Epithelium of lens 279
Exophthalmos producing factor (EPF) 79, 344
Experimental cataracts 166, 302
Experimental corneal hydration 273
Experimental exophthalmos 344
Experimental retinopathy 140
Eye, insect 65

Fat 354
Fatty acids 313
Fish 79, 344
Fitting of biomathematical models 321
Fixation procedures 149
Flicker fusion frequency 239
Fluorescein 254
Fluorescent compound 338
Fluorescence spectra 338
Fluorogen 338
Formol-calcium chloride 273
Formol-cetylpyridinium chloride 273
Formol-sodium phosphate 273
Frequency spectrum 354
Frog 279

Galactose 166
Galactose-cataract 302
Galactosaminoglycan synthesis 31
Gamma globulin elevation 245
Glycolysis 58, 72, 302
Glycoprotein 257
Glycosaminoglycans 31, 94, 257, 220
Glucose, utilization 72
Glucose tolerance factor 72
Glutathione 48
Glutaraldehyd fixation 149
Growth curve 321
Guinea pig 124, 321

Hexosamines 257
Histochemistry 149, 175
Histoplasma capsulatum 228
Histoplasma duboisii 228
Histoplasmosis, experimental 228
Histoplasmosis, pathology 228
Honeybee 292
Human eye 10, 124, 254
Hydration of cornea 175

IgA immunoglobulin 245
IgG immunoglobulin 245
IgM immunoglobulin 245
Immuno-electrophoresis 10, 156
Immunosuppressive therapy 21
Influence of aging 124, 156, 211, 302, 321
Influence of external pressure on cornea 72
Influence of sex 211
Iontophoresis 254
IOP regulation 193
Insect 65, 292
Insect vision 65
Insoluble protein fraction 10, 338
Insulin 72
Intranuclear inclusions 245
Intraocular pressure 211
Iris 124

Keratan sulphate 220
Kidney transplantation 21

Lacrimal gland 245
Lathyrism 31, 220
Lens 72, 166, 279, 338
Lens, -cortex, -nucleus 313
Lens injury 279
Lens lipids 313
Lens metabolism 72, 166, 302, 313
Lens proteins 10, 156, 338
Lens, Regeneration 279
Lens, tissue culture 279
Lens weight 321
Light 65
Lipid biosynthesis 313
Local cone electroretinogram 40
Luminance 365

Mathematical treatment 211
Measurement of intercorneal distance 79
Mouse 166
Mucopolysaccharides 94, 149
Musca 65
Muscle 354

Neural convergence 40

Ocular pulse 109
Ocular side effects 21
Ommatidia 65
Ontogeny 156
Ophthalmodynamography 201
Ophthalmodynamometry 201
Optic nerve 354
Orbita 354

Ox 10, 94, 124, 220, 257, 321
Oxygen 58
Ommochrome 65

Permanganate 175
Phosphatydyl choline 313
Phosphatidyl ethanolamine 313
Photopigment 292
Photoreceptors 140
Photosensitivity 65
Physical theory 129
Physical units 5
Pig 58, 124
Plethysmography 109
Potassium 58
Primate experiments 193
Progesterone, oestradiol and oestriol 344
Protein 10, 156, 338
Pupillary flow 254

Rabbit 48, 58, 124, 149, 175, 187, 228, 313, 321
Rat 58, 72, 140, 166, 338
Receptive field 365
Reflectometry 109
Retina 58, 140, 257
Retinaldehyde 292
Retinaldehyde-protein-complex 292
Retinal (vitamin A aldehyde) 65
Rhodopsin 65

Sialic acid 257
Sialoglycan 257
Sound velocity 354
Sound attenuation 354
Specific gravity 354
Species-differences 58, 124, 321
Sphingomyelin 313
Subunit structure of β-crystallins 156
Sugar alcohol 166
Sympathetic innervation 193
Starch gel electrophoresis 10
Statistics 201, 211, 302, 321
Steady state 48
Strabismus 88
Strabismus amblyopia 354
Stroma, cornea 48

Taurine 48
Testosterone 344
Threshold 365
Tissue culture 279
Transport-phenomena 187
Turnover rate 48

Urea-starch gel electrophoresis 156
Uronic acid 257
Uvea 124

Vibration tonometry 129
Visual acuity 365
Visual pigment 65, 292
Visually evoked response 40
Vitreous body, histoplasmosis 228

Warburg-technique 58
Wound repair 279

Xanthomatin 65
X-irradiation 302